

CLAIMS

1. A substrate covered at least partially with a layered coating, said layered coating comprising an intermediate coating and a hard carbon coating, characterised in that said intermediate coating comprises
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- a first metal layer deposited on the substrate, said first metal layer comprising at least one element of group IVB, group VB or group VIB;
 - 10 - a nitride layer deposited on said first metal layer, said nitride layer comprising at least one nitride of an element of group IVB, group VB or group VIB;
 - a second metal layer deposited on said nitride layer, said second metal layer comprising at least one element of group IVB, group VB or group VIB;
 - 15 - a transition layer deposited on said second metal layer, said transition layer comprising at least one carbide of an element of group IVB, group VB or group VIB.
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2. A substrate according to claim 1, whereby said hard carbon coating comprises a diamond-like carbon (DLC) coating.
3. A substrate according to claim 1, whereby said hard carbon coating comprises a diamond-like nanocomposite (DLN) coating.
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4. A substrate according to claim 1, whereby said hard carbon coating comprises a layered structure of diamond-like carbon (DLC) and diamond-like nanocomposite (DLN) coatings.
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5. A substrate according to any one of the preceding claims, whereby said hard carbon coating is doped with a transition metal and/or with an inert gas.

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6. A substrate according to any one of the preceding claims,
whereby said first metal layer comprises Ti or Cr.
- 5 7. A substrate according to any one of the preceding claims,
whereby said nitride layer comprises TiN or CrN.
8. A substrate according to any one of the preceding claims,
whereby said second metal layer comprises Ti or Cr.
- 10 9. A substrate according to any one of the preceding claims,
whereby said transition layer comprises Ti_xC_y or Cr_xC_y .
- 15 10. A substrate according to any one of the preceding claims,
whereby said first metal layer and said second metal layer have
a thickness between 0.001 and 1 μm .
11. A substrate according to any one of the preceding claims,
whereby said nitride layer has a thickness between 0 and 5 μm .
- 20 12. A substrate according to any one of the preceding claims,
whereby said transition layer has a thickness between 0.001 and
1 μm .
- 25 13. A substrate according to any one of the preceding claims,
whereby the adhesion of said layered coating expressed by
means of the Rockwell C test is better than HF2.
- 30 14. A substrate according to any one of the preceding claims,
whereby the adhesion of said layered coating expressed by
means of the critical load to obtain delamination is higher than 35
N.
- 35 15. A substrate according to any one of the preceding claims,
whereby said layered coating has a hardness of at least 10 GPa.